

Claim

1, one kind adds the organic evaporation coating film device that has the electric field, and including heater (1) and vacuum interface (7), put below heater (1) substrate (2) in the closed container, and the higher authority of evaporation source (6) characterized in installing between substrate (2) and evaporation source (6) two metal electrode board (3), two metal electrode board (3) perpendicular substrate (3), and be close to substrate (3), evaporation source (6) the evaporant below metal electrode board (3) belongs to the space between plate electrode (3) through two gold medals when moving to substrate (2); Metal electrode board (3) are insulating with other devices at container interior insulating rod, link to each other with the same power of wire (4); Voltage is 1000 volts to 3000 volts between two gold medals category plate electrodes (3).

Evaporant on it uniformly the coating by vaporization on substrate 2. Vacuum interface 7 is used for being connected with the vacuum system.

The characteristic of this utility model is below substrate 3, and two metal electrode boards 3 have been placed to the higher authority of evaporation source 6, and plate electrode 3 is close to substrate as far as possible, and 2 perpendicular with substrate. Evaporation source 6 is in the below of metal electrode 3, and is in the metal electrode board between 3, and evaporation source 6 evaporates the evaporant that to 2 migrations of substrate the time, and through two spaces of metal electrode board between 3, metal electrode board 3 insulate with other devices with insulating rod 5 in the closed container of film-plating machine. Two gold medals belong to 3 usefulness wires of plate electrode and link to each other with power 4. Voltage is 1000 volts to 3000 volts between two gold medals category plate electrode.

This utility model adopts the supplementary precipitation equipment of electric field, has improved the gather density of organic layer, for example brings up to 0.97 to the gather density of quinoline aluminium by original 0.9, and the surface roughness reduces more than the one time, and the electromobility improves 20%, thus light emitting device life-time dilatation 50%.

Add the organic evaporation coating film device that has the electric field

This utility model belongs to the electroluminescence technical field, and it additionally has the electric field assistor to evaporate the coating film device organically to be one kind.

The organic electroluminescence device is one kind and directly turns into the device of light energy to the electric energy, and its general structure is the sandwich structure, presss from both sides one deck or multilayer organic film between a metallic cathode and a transparent positive pole, calls the organic layer usually. The organic layer utilizes the organic molecule under the evaporation state, and the migration of molecule is grown on the special substrate that is equipped with. The organic layer of preparation electroluminescent device uses the vacuum vapor plating machine usually. The organic material evaporating temperature is lower, and the organic molecule is under low temperature, and the mobility is relatively also lower, often has a lot of holes during the film forming. The organic layer that contains the hole is put in the air, and during aqueous vapor and oxygen will get into the membrane, under the circumstances that adds the electricity, water and oxygen just took place the reaction together with the organic matter, make the organic layer suffer destruction. The light emitting device of this kind of organic layer preparation, short-lived, the luminous mass descends.

Hole during for reduction organic layer film forming, the quality and the life-span of guaranteeing the light emitting device organic layer, this utility model improves present organic evaporation film-plating machine, and the purpose provides an improvement to evaporate the device of coating film film forming performance organically.

Fig. 1 is the structure chart of this utility model. 1 is the heater in the picture, 2 substrate, 3 metal electrode boards, 4 powers, 5 insulating rods, 6 evaporation sources, 7 vacuum interfaces.

In the closed container of vacuum vapor plating machine, heater 1 is installed on upper portion, and substrate 2 is fixed below heater 1. Evaporation source 6 has been placed at the center of closed container lower part, and substrate 2 keeps at heater 1 and evaporation source between 6. The position of evaporation source 6 is just convenient to use

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[73] 专利权人 中国科学院长春光学精密机械与物理研究所

地址 130022 吉林省长春市人民大街 140 号

[72] 设计人 初国强 刘星元 刘云 王立军

[21] 申请号 01208447.6

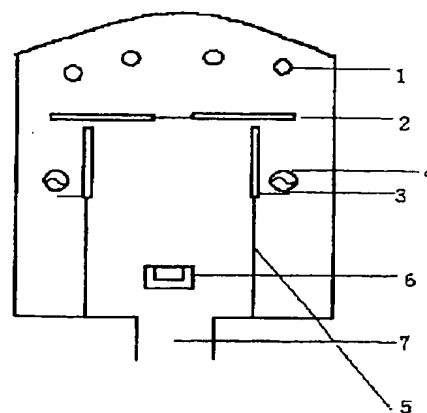
[74] 专利代理机构 长春科字专利代理有限公司
代理人 李恩庆

权利要求书 1 页 说明书 2 页 附图页数 1 页

[54] 实用新型名称 加有电场的有机蒸发镀膜装置

[57] 摘要

本实用新型属于电致发光技术领域,是一种附加有电场辅助装置的有机蒸发镀膜装置。本实用新型是在普通的真空有机镀膜机上,放入两个金属电极板,金属电极板在衬底基片的下方,并同其垂直。蒸发源在金属电极板的下方,蒸发物在向衬底基片迁移过程中,通过两金属电极板之间的空间,两金属极板的电压为 1000 伏 ~ 3000 伏交流电。本实用新型可以提高有机层的聚集密度,降低有机层表面粗糙度,提高迁移率和延长器件寿命。



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1、一种加有电场的有机蒸发镀膜装置，在密闭容器中包括有加热器（1）和真空接口（7），衬底基片（2）放在加热器（1）的下面，蒸发源（6）的上面，其特征是在衬底基片（2）和蒸发源（6）之间安装有两个金属电极板（3），两个金属电极板（3）垂直衬底基片（2），并靠近衬底基片（2），金属电极板（3）下面的蒸发源（6）蒸发物在向衬底基片（2）迁移时，通过两金属电极板（3）之间的空间；金属电极板（3）在容器内用绝缘棒同其它装置绝缘，用导线同电源（4）相连；两金属电极板（3）间电压为 1000 伏～3000 伏。

其上的蒸发物均匀地蒸镀在衬底基片 2 上。真空接口 7 用来同真空系统相连接。

本实用新型的特征是在衬底基片 3 的下面,蒸发源 6 的上面放置有两个金属电极板 3, 电极板 3 尽量靠近衬底基片, 并同衬底基片 2 垂直。蒸发源 6 在金属电极 3 的下方, 并处在金属电极板 3 之间, 蒸发源 6 蒸发出的蒸发物在向衬底基片 2 迁移时, 通过两个金属电极板 3 之间的空间, 金属电极板 3 在镀膜机的密闭容器中用绝缘棒 5 同其它装置绝缘。两金属电极板 3 用导线同电源 4 相连。两金属电极板间电压为 1000 伏~3000 伏。

本实用新型采用电场辅助沉积装置, 提高了有机层的聚集密度, 例如把喹啉铝的聚集密度由原来的 0.9 提高到 0.97, 表面粗糙度降低一倍以上, 电迁移率提高 20%, 从而发光器件寿命延长 50%。

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说明书附图

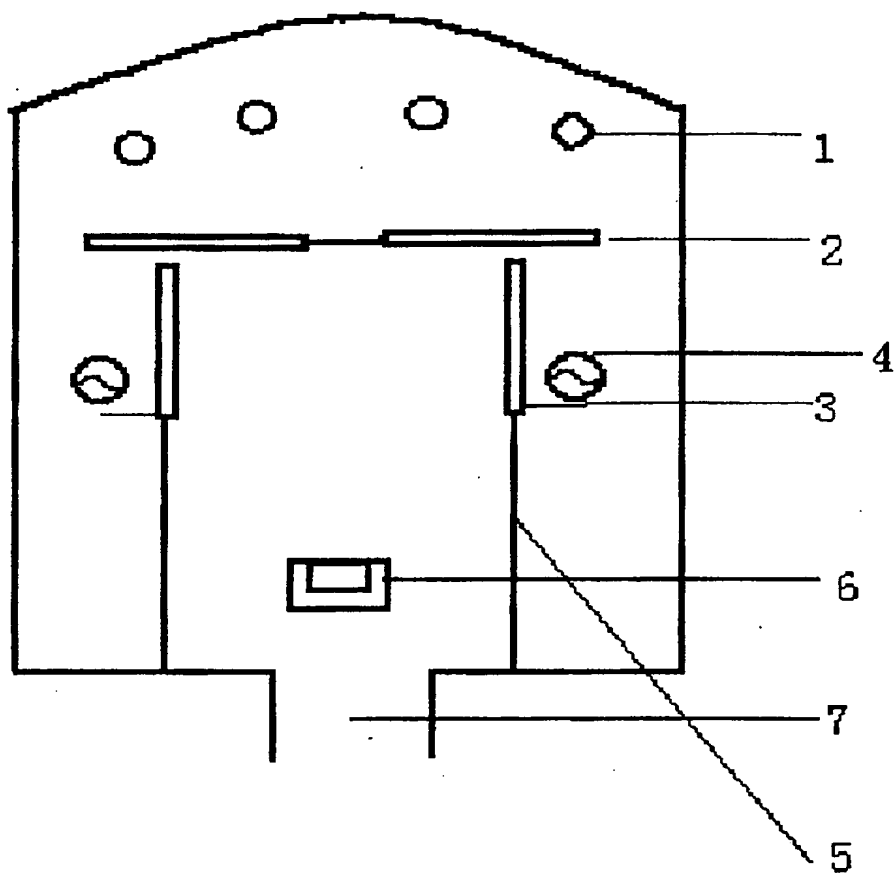


图 1